

Exhibit 3

Declaration of Thomas McGuire in Support of Plaintiffs' Memorandum in Opposition to Defendants' Motion to Exclude Testimony of Thomas McGuire Concerning Damages

I. Introduction and Overview

1. I submit this declaration in support of Plaintiffs' Opposition to Defendants' Motion to Exclude Testimony of Thomas McGuire Concerning Damages.

2. I have been asked by counsel for plaintiffs to review and respond to claims made by defendants in their Daubert brief.¹ Specifically, I address defendants' claims that (1) my damage analysis is unreliable because it "do[es] not 'fit' the issue of damages" because it is based on costs to Bellwether governments of responding to the opioid crisis that may have been financed by diverting resources from other uses; and (2) my damage calculations "are not reliable" because they are based in part on my judgment and because my approach "relies on the unjustified assumption that the Counties have allocated their resources efficiently and reasonably."² This declaration shows that these arguments reflect a flawed economic view of damages suffered by the Bellwether governments as well as a mischaracterization of my analysis.

3. A summary of this declaration is as follows:

- There is no basis to defendants' argument that my analysis does not "fit" the issue of damages raised in this case.
 - My approach applies a standard damages methodology to evaluate the impact of defendants' misconduct on opioid-related costs faced by Bellwether governments.
 - There is no economic basis to defendants' claim that damages analysis requires consideration of which or how government resources were diverted due to the opioid crisis.

¹ Brief in Support of Defendants' Motion to Exclude Testimony of Thomas McGuire Concerning Damages ("McGuire Daubert Brief"), §II.A., June 28, 2019. My responses to defendants' motion is limited to the economic arguments put forth by defendants and does not address legal arguments included in the motion.

² See Summary Sheet for Defendants' Motion to Exclude Testimony of Thomas McGuire Concerning Damage, June 28, 2019.

- There is no economic basis to defendants' claim that damages analysis requires consideration of whether governments' allocation of resources was "reasonable" or "efficient."
- There is no economic basis to defendants' claim that my calculations of opioid-related costs are unreliable.
 - My analysis is based on accepted frameworks for estimating opioid-related costs published in the economic literature and is based on available financial data from the counties and communications with government officials.
 - The alternative damage framework based on keyword searches of accounting documents proposed by defendants' expert is unreliable.

II. Opioid-Related Costs Attributable to Defendants' Misconduct is an Economically Appropriate Measure of Damages Suffered by Bellwethers

4. Contrary to defendants' argument that my damage analysis does not "fit" this case, my framework is fully consistent with the standard economic approach to estimating damages. As set forth in my March 25, 2019 Expert Report, the damage framework, which incorporates empirical analyses undertaken by Professor Rosenthal, Professor Cutler and myself, identifies the costs incurred by Bellwether governments in responding to opioid-related harms that are attributable to defendants' misconduct.³ The analyses together estimate damages as the difference between (i) actual costs incurred by Bellwether counties in responding to opioid-related harms; and (ii) the opioid-related costs that the Bellwether counties would have faced in the absence of defendants' misconduct.⁴ This is the standard economic approach to determining "but-for" damages.⁵

³ See, e.g., Expert Report of Professor Thomas McGuire, Damages to Bellwethers, March 25, 2019 ("Damages Expert Report" or "Report"), ¶¶14-17.

⁴ Id.

⁵ See, for example, M. Allen, R. Hall and V. Lazear, "Reference Guide on Estimation of Economic Damages," *Reference Guide on Scientific Evidence*, 3rd Edition (2011): "The first step in a damages study is the translation of the legal theory of the harmful event into an analysis of the economic impact of that event. In most cases, the analysis considers the difference between the plaintiff's economic position if the harmful event had not occurred and the plaintiff's actual economic position." (p. 432)

5. More specifically, I estimate the Bellwether governments' actual opioid-related costs starting with a review of the counties' budgets and accounting data for departments most directly affected by the crisis.⁶ I use Professor Cutler's estimates of the share of departments' efforts that are attributable to opioid-related harms and the share of opioid-related harms that are attributable to shipments of prescription opioids and Professor Rosenthal's estimates of the share of prescription opioid shipments that are attributable to defendants' misconduct to estimate the "but-for" level of opioid-related harms.⁷ Together, these components of the calculation yield an estimate of opioid-related expenditures that resulted from defendants' misconduct.⁸

6. As set forth in my Report, my methodology for estimating costs that were directly incurred by the Bellwether governments in responding to the opioid crisis is straightforward and follows the methods used in both published peer-reviewed academic papers and government studies quantifying the costs of the opioid epidemic.⁹ Specifically, despite defendants' mischaracterization to the contrary, my estimates are based on a thorough review of county expenditures in divisions that provide services affected by the opioid crisis.¹⁰ Importantly, and as defendants' fail to acknowledge, the calculations in my Report and summarized above are not dependent on the application of the economic

⁶ Damages Expert Report, ¶¶56-71.

⁷ Damages Expert Report, ¶¶72-78.

⁸ Damages Expert Report, ¶78 and Table IV.14.

⁹ As noted in Damages Expert Report, ¶41, see also, e.g., Florence, Curtis S, Chao Zhou, Feijun Luo, Likang Xu, "The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013," *Medical Care*, Volume 54, Number 10, October 2016; Hansen, Ryan N., et al. "Economic Costs of Non-Medical Use of Prescription Opioids, Clinical Pain, 2011. Birnbaum, et al. "Societal Costs of Prescription Opioid Abuse, Dependence, and Misuse in the United States," *Pain Medicine*, 2011; Rhyam, Corwin N., "The Potential Societal Benefit of Eliminating Opioid Overdoses, Deaths, and Substance Use Disorders Exceeds \$95 Billion Per Year," Altarum, November 16, 2017; Council of Economic Advisers (US), "The Underestimated Cost of the Opioid Crisis," Executive Office of the President of the United States, Council of Economic Advisers, 2017.

¹⁰ Damages Expert Report, ¶¶51-55. Defendants incorrectly claim that I "did not attempt to review County documents to identify expenditures specifically dedicated to addressing opioid-related harms." (McGuire Daubert Motion, p. 3)

concept of “opportunity costs.” To the contrary, my analysis simply and directly estimates the cost to Bellwether governments of providing opioid-related services as a result of defendants’ misconduct.

7. Nonetheless, my analysis recognizes that opioid-related expenses incurred by the Bellwether counties due to defendants’ misconduct were financed in large part by resources diverted from other services that Bellwether governments would have provided “but for” defendants’ misconduct.¹¹ This diversion is the consequence of the fact that Bellwether governments’ budgets are (more or less) fixed. Opioid-related expenditures by Bellwether governments that are attributable to defendants’ misconduct reflect a real loss of resources that would not have been expended in the absence of the defendants’ misconduct. As a matter of economics, these losses are appropriately considered as damages.

8. Defendants’ claim that in order to claim these expenses as a harm one needs to demonstrate *how* the resources were drawn from another use is misguided, and defendants provide no economic support for this position.¹² The situation is no different here than when damages to a household are estimated, as illustrated by the following simple example.¹³ Suppose one were tasked with estimating the cost to a family from a termite infestation in their house resulting from improper treatment by a pest control firm. A reasonable estimate of the damages from this “bad act” would be the cost of an exterminator and any house repairs to fix the damage. If the family paid \$1,000 for repairs, then one would conclude that the family suffered \$1,000 in losses as a result of the infestation

¹¹ See, e.g., Damages Expert Report, ¶¶25-31.

¹² Specifically, defendants’ claim that “McGuire’s theory rests on the assumption that if the County is providing some opioid-related service, then it is not providing another service (or is providing another service at reduced quality)—and that the County is harmed by not providing the other service. But McGuire does not identify any services that were not provided because the Counties were providing opioid-related services, nor does he explain how the non-provision of non-opioid-related services caused any harm to the Counties, or how any such harm can be quantified.” (McGuire Daubert Motion, p. 5).

¹³ Comparison of the estimation of the Bellwether counties’ damages to the estimation of damages suffered by a hypothetical consumer is useful in understanding the economic concepts underlying my analysis and why defendants’ claims regarding requirements of efficiency or identifying lost services is misguided. This comparison discussion can also be found in my deposition testimony. For example, see Deposition of Thomas G. McGuire, April 23rd, 2019 (“McGuire April 23rd, 2019 Deposition”), at 233:9-234:11 and 251:5-17.

because this is the money the family would have otherwise been able to spend on other things.

Importantly, identifying repair costs as damages *does not* require an analysis of how the family financed the \$1,000 in costs, such as whether the family depleted savings, asked their teenager to take a job after school, or cut some spending elsewhere. Regardless, the expenditure on the repairs would still reflect a loss of \$1,000.

9. My approach to estimating damages to Bellwether governments is fully analogous to this example. Just as in the above example where damages can be calculated as the repair costs incurred as a result of the improper treatment by the pest control firm, my damage estimates reflect the costs incurred by the Bellwether counties in responding to defendants' misconduct.

10. Defendants' claim that only increases in aggregate county spending should be considered damages implies that the existence and size of damages are dependent on how the opioid-related costs imposed on the Bellwether counties are financed. Defendants assert that only if the opioid-related costs were financed by incremental "out-of-pocket" expenditures (presumably contributed by taxpayers) would these costs then be appropriately considered damages. According to defendants, if the expenditures were financed by diverting resources from other uses then they would not count as damages. This distinction has no economic basis and defendants provide no support for this claim. Even if there is no increase in a county's total expenditures, these are "out-of-pocket" costs just the same, i.e., costs associated with providing opioid-related services that would not have been incurred in the absence of the opioid crisis and defendants' misconduct.¹⁴

11. The recognition that increased spending on one program imposes real costs on a government by drawing resources from other programs is standard in evaluating the costs and benefits

¹⁴ Defendants' expert argues that damages are appropriately "based upon the out-of-pocket costs or investment the plaintiff has incurred in the project. Under this method, the out-of-pocket costs incurred related to the project are aggregated and become the measure of damages." (Expert Report of Matthew G. Bialecki ("Bialecki Report"), fn. 26).

of government programs. Spending by Bellwether governments in response to opioid-related demands is properly interpreted as a type of forced government program resulting from defendants' misconduct. As discussed in my Report, economic analysis of local governments typically recognizes that they face budget constraints due to limitations on their ability to raise taxes.¹⁵ And therefore "opportunity costs" of foregone services are explicitly considered in evaluating the costs and benefits of government programs, whether these programs are funded from "new" or existing sources.¹⁶ This concept is frequently found in the literature and is standard practice in evaluating the cost of government programs:¹⁷

- A book on the appropriate methods with which to evaluate potential government crime intervention programs notes that "[a] basic economic principle is that we want, as far as possible, to measure the opportunity cost of any intervention or process. That is, the value of what could best have been done with the resources if they had not been committed to that intervention or process."¹⁸
- The Office of Management and Budget of the Federal Government (OMB) publishes a guide to evaluating the costs of federal programs: "[t]he relevant cost concept is broader than private-sector production and compliance costs or government cash expenditures. Costs should reflect the opportunity cost of any resources used, measured by the return to those resources in their most productive application elsewhere."¹⁹ Further, when the OMB estimates the cost of a proposed federal program it does so without reference to a particular source of the funds for the program. It is up to Congress to decide what, if any, other programs will have their funding reduced to support the new initiative.²⁰

¹⁵ Damages Expert Report, ¶¶21-22.

¹⁶ Damages Expert Report, ¶¶23-28.

¹⁷ See also, e.g., Damages Expert Report, ¶27 (citing to Mankiw, Gregory, *Principles of Economics*, 7th ed., Cengage Learning, p. 6 which notes that "The opportunity cost of an item is what you give up to get that item. When making any decision, decision makers should be aware of the opportunity costs that accompany each possible action. In fact, they usually are.").

¹⁸ Netten, Ann. "Identifying Costs and Costing Complex Intervention Programs," in *Cost-Benefit Analysis and Crime Control*. John K. Roman, Terence, Dunworth, and Kevin Marsh. Eds. (2010), p. 34.

¹⁹ OMB Circular A-94 "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs" (10/29/1992), p. 6 (<https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A94/a094.pdf>).

²⁰ See chapter titled 'Budget Process and Budget Concept' in the OMB's publication "An American Budget Analytical Perspectives" for fiscal year 2019 (available at <https://www.govinfo.gov/content/pkg/BUDGET-2019-PER/pdf/BUDGET-2019-PER.pdf>) for a description of the federal government budgeting process including a description of the Statutory Pay-As-You-Go Act of 2010 which requires that "legislation reducing revenues must be fully offset by cuts in mandatory programs or by revenue increases, and that any bills increasing mandatory spending must be fully offset by revenue increases or cuts in mandatory spending." (p. 81). The means for

12. Defendants also mischaracterize the record in this case in claiming that my analysis did not address whether opioid-related expenses by Bellwether governments led to a reallocation of resources in the counties.²¹ Defendants' claim that "there is no proof that the Counties 'gave up' anything" is also simply incorrect.²² The record contains testimony from many county employees addressing the fact that services have been reduced or diminished in the Bellwether counties in response to the opioid crisis. In addition to those given as examples in my Report, these include:²³

- Margaret Keenan, the Director of the Cuyahoga County Office of Budget Management testified that "[j]ust because an agency sees an increase in cost X doesn't mean that we respond with additional funding because we have limited funds. So it's always an opportunity cost there that you pay for this, so now we don't pay for this anymore."²⁴ She also noted that "if we weren't dealing with the opiate issue, we would have money that we could spend on something else."²⁵
- A captain in the Summit County Sheriff's Department testified that "[the opioid crisis] continues to pull resources from what we've always done in the past to have to deal with inmates that are in -- in the jail for that type of stuff and are going through withdrawal because they can't get it in the jail any- -- anymore, that -- they get it on the streets. So it pulls our staff to deal with those issues."²⁶

13. In sum, there is no basis to defendants' argument that opioid-related expenses incurred by the Bellwether counties due to defendants' misconduct but financed by diversion of resources from other uses are not damages. My analysis estimates opioid-related costs incurred by these governments attributable to defendants' misconduct and is consistent with standard approach to damage analysis. Defendants' argument that no resources were diverted from other government activities is also contradicted by the testimony cited in my Report and above.

achieving this deficit neutrality is not specified and Congress can cut from many other programs in order to fund some new initiative.

²¹ McGuire Daubert Motion, p. 5.

²² McGuire Daubert Motion, p. 8.

²³ Damages Expert Report, ¶29 for additional references.

²⁴ Deposition of Margaret Keenan, December 12th, 2018 ("Keenan Deposition"), p. 302:16-21.

²⁵ Keenan Deposition, p. 389:13-16.

²⁶ Deposition of Shane Barker, November 28, 2019, p. 146:15-22.

III. There is No Basis to Defendants' Claim that Damage Analysis Requires Consideration of Whether Counties' "Expenditures Were Efficient or Reasonable"

14. Defendants' argue that I "did not consider whether the Counties 'allocated their resources to the most highly valued use when they allocated their budget dollars' or whether expenditures were affected by political considerations or corruption."²⁷ Thus, they claim that my analysis estimated county expenditures and damages "without accounting for whether the expenditures were efficient or reasonable."²⁸

15. Defendants and their experts provide no economic argument for why Bellwether governments need to establish that they "allocated their resources to the most highly valued use" in order to claim damages from defendants' misconduct. Nor do they provide any evidence in support of their argument that Bellwether governments acted inefficiently prior to the opioid epidemic or that their response to the epidemic was unreasonable. Moreover, they fail to define how they would determine whether the Bellwether governments were "inefficient," "unreasonable," or influenced by "corruption." As discussed in my Report, evidence that the affected divisions have excess capacity or that they maintain budgetary reserves in select divisions does not imply that these governments are operating inefficiently or that opioid-related spending due to defendants' misconduct would not have resulted in damages.²⁹ Certain divisions may maintain excess staffing capacity in order to maintain their ability to respond to unplanned incidents that require resources. For the same reason it may also be necessary for these divisions to maintain monetary reserves. This does not reflect inefficiency, but instead reflects an efficient response when the demand for services provided by a division is uncertain.

16. More fundamentally, defendants' unsupported assertion the Bellwether governments operate inefficiently is irrelevant to the evaluation of opioid-related harms resulting from defendants'

²⁷ McGuire Daubert Motion, p. 6.

²⁸ McGuire Daubert Motion, p. 13.

²⁹ Damages Expert Report, ¶¶32-34.

misconduct. Revisiting the pest control hypothetical discussed above exposes this misconception. In this scenario, the household subject to the infestation paid \$1,000 on repairs due to the pest control firm's misconduct and suffered \$1,000 in damages. Economic damages resulting from the misconduct is not related to whether the victimized household was "rational" in their other purchases or that they weren't "wasting money" on something they didn't need in order to be compensated for damages.

17. As discussed in my Report, municipal governments produce multiple outputs and face on-going decisions about the mix of services to provide to residents.³⁰ Faced with these budget constraints, government officials must make decisions about how to allocate spending across different services similar to decisions faced by consumers who must allocate resources across alternative uses at the household level.³¹ Even if governments, like consumers, can make errors in deciding how to allocate resources, the principle that governments act to maximize the welfare of their citizens -- like the concept that consumers seek to maximize welfare for themselves and family members -- is a widely accepted principle of economic analysis. Defendants' own damages expert adopts this view in citing academic research on government behavior that notes that:

"[I]logically, budget allocation is simple: allocate funds among government programs until an additional dollar moved to any program yields an additional return to society equal to the return lost from the program from which that dollar was taken. [i.e. marginal cost analyses] That is the public sector equivalent of the familiar resource allocation rule for profitability in business operations."³²

18. Within this framework, the cost to a government of having to reallocate its funds to a particular use is measured simply by the spending on that new service, since that spending could have been devoted to other uses and provide value to residents. This is precisely the analysis undertaken in my Report.

³⁰ Damages Expert Report, ¶21.

³¹ Damages Expert Report, ¶22.

³² Bialecki Report, p. 147.

IV. There is No Basis to Defendants Claim That My Estimate of Opioid-Related Costs Attributable to Defendants' Misconduct is Unreliable

19. Defendants' have no basis to claim that the methodology I use to estimate damages is unreliable. As explained above, I identify opioid-related expenditures in the county divisions affected by the opioid crisis by applying methods used in peer-reviewed academic literature and government studies. Further, while these studies apply their estimates of the percent of costs that are opioid-related to *all* costs incurred in the various activities (e.g. total criminal justice costs incurred for policing, legal and adjudication, and correctional facilities), my analysis undertakes the additional step of limiting the analysis only to the cost categories within each activity that would be affected by the opioid crisis. This is referred to as *affected costs* in my Report. My approach thus leads to smaller damages than those that would be generated by simply applying the estimation method from the existing literature.

20. My method of identifying the relevant affected cost categories relies on multiple sources of information. Because the counties' accounting records do not separately identify opioid-related expenditures, it is necessary to evaluate all available information to estimate opioid-related costs. Based on interviews I had with Cleveland city officials, I first determined the key issues relevant to my analysis of damages for both the cities and the counties. As I indicated in my deposition, Compass Lexecon staff, under my direction, also gathered additional information from interviews with county officials, based in part on the information learned from interviews with city officials, and we reviewed relevant county documents produced in discovery.³³

21. Using this information, I focused my review on the largest cost categories in the affected divisions.³⁴ Cost categories affected by the opioid crisis principally include the salaries and benefits of individuals working in the affected divisions. I adjusted these expenditures to exclude individuals

³³ McGuire April 23rd, 2019 Deposition, at 76:18-79:18.

³⁴ See Damages Expert Report, ¶¶56-71 for this discussion. The detailed calculations of this analysis, including all of the cost categories included in my estimates, are all documented and presented in Appendices IV.C and IV.D of my Report.

engaged in overhead activities and/or activities that may not have been affected by the opioid crisis.

For certain divisions I also identified non-compensation costs that would have been affected by the opioid crisis (e.g. costs of providing medical and other services to children in foster care). The bulk of estimated damages relate to costs incurred from the diversion of staff time, after excluding staff dedicated to unrelated or general overhead activities.³⁵

22. The only alternative method of estimating opioid-related costs proposed by defendants is to employ keyword searches on the documents and financial statements produced in discovery to look for mentions of opioid-related terms.³⁶ However, defendants' own expert admits that this method would underestimate damages as there was little to no evidence of "any attempt by the counties to separately account or otherwise segregate its cost related to prescription opioid abuse. In fact, many of the counties' representatives and division personnel testified that the counties did not maintain any records to keep track of their costs related to the opioid crisis, let alone relating to prescription opioids."³⁷

23. The damage methodology proposed by defendants and their damage expert illogically equates the absence of opioid-related terms in accounting statements to the absence of opioid-related costs.

24. Furthermore, defendants' damages expert has nothing to say, admitting as much, about the central issue of attribution of opioid-related costs to defendants' misconduct.³⁸ My approach makes explicit and transparent use of results from analyses of Professors Rosenthal and Cutler to make

³⁵ Note that this adjustment may even underestimate damages as some administrative time is likely attributable to opioid-related activities.

³⁶ See Bialecki Report, pp.15-16 for an explanation of this proposed exercise. Mr. Bialecki also reviews total spending in each of the affected divisions to measure what he claims are "incremental spending" due to opioids, however he claims this is a less precise method (Bialecki Report, p. 11).

³⁷ Bialecki Report, p. 12.

³⁸ Bialecki Report, p. 4: "I was not engaged to determine the extent to which any identified opioid-related costs were caused by any party or non-party in this action, nor do I have an opinion on such."

the required attribution. Thus, while they incorrectly claimed that my methodology is unreliable, defendants fail to propose any alternative.

V. Defendants Incorrectly Claim that My Analysis Fails to Distinguish Harms Across Defendants

25. I do not opine on the legal question of how the court might allocate any harms across different categories of defendants. However, based on guidance from the court, my damages framework can be applied directly to estimate the relative contribution to damages for individual manufacturers or distributors. Thus, there is no basis to defendants' claim that my analysis is "irrelevant to the assessment of damages" for specific defendants.³⁹

26. For example, the estimation reported in Tables IV.12 and IV.13 of my Report could be modified to estimate damages based on the percent of opioid-related harms due to any individual manufacturer misconduct. I also presented an illustration of how my method could estimate damages due to distributors misconduct, which could also be adapted to an individual distributor.⁴⁰ These calculations in my Report relied on preliminary estimates from Professor Cutler that were based on the percent of shipments attributable to distributor misconduct provided by counsel. After my Report was filed, Dr. Craig McCann submitted revised estimates which led to revised estimates on the percent of opioid-related harms due to distributor misconduct by Professor Cutler. Appendix A to this declaration updates Appendix IV.F to incorporate these revised estimates.

³⁹ McGuire Daubert Motion, p. 10. In contrast, as noted above, defendants' only expert report that includes any estimate of opioid-related costs incurred by the Bellwether counties (Bialecki Report) provides no methodology for attributing these estimates of opioid-related costs to defendants' misconduct at all, let alone across individual defendants. See Bialecki Report, p. 4.

⁴⁰ See Damages Expert Report, Appendix IV.F.

July 31, 2019

A handwritten signature in black ink, appearing to read "T. McGuire".

Thomas McGuire

Appendix A: Revised Appendix IV.F: Damages Due to Distributor Misconduct

In Tables IV.12 and IV.13 in my Report, I calculated the damages to selected divisions of Cuyahoga and Summit counties due to defendants' misconduct. Professor Cutler presents an updated example calculation of the share of opioid-related harms to these divisions attributable to distributors' misconduct.¹ These tables are reproduced below.

Table F.1
Cuyahoga County - Share of Harms Due to Distributors' Misconduct

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Approach 1													
ADAMHS Board	0.9%	1.1%	1.4%	1.4%	1.5%	1.6%	1.8%	3.5%	4.0%	5.4%	7.8%	8.9%	8.9%
DCFS	1.3%	1.6%	1.9%	2.3%	2.6%	2.8%	3.3%	4.5%	5.6%	6.7%	9.5%	10.0%	10.0%
Office of Prosecutor	1.5%	1.6%	2.3%	2.8%	3.4%	3.7%	4.4%	5.1%	5.2%	5.3%	5.8%	7.0%	7.0%
Office of Public Defender	1.5%	1.6%	2.3%	2.8%	3.4%	3.7%	4.4%	5.1%	5.2%	5.3%	5.8%	7.0%	7.0%
Court of Common Pleas	1.6%	1.7%	2.3%	2.8%	3.5%	3.8%	4.6%	5.5%	5.8%	5.9%	6.4%	7.8%	7.8%
Juvenile Court	0.5%	0.5%	0.7%	0.8%	0.8%	0.9%	1.0%	1.4%	1.9%	1.9%	2.8%	2.8%	2.8%
Sheriff's Office	1.5%	1.6%	2.3%	2.8%	3.4%	3.7%	4.4%	5.1%	5.2%	5.3%	5.8%	7.0%	7.0%
County Jail	1.5%	1.6%	2.3%	2.8%	3.4%	3.7%	4.4%	5.1%	5.2%	5.3%	5.8%	7.0%	7.0%
Office of Medical Examiner	2.5%	2.5%	3.8%	4.9%	6.0%	8.1%	9.7%	12.5%	13.6%	14.3%	24.2%	24.5%	24.5%
Approach 2													
ADAMHS Board	1.5%	2.0%	2.3%	2.1%	2.2%	2.2%	2.3%	4.0%	4.4%	5.5%	7.9%	9.1%	9.1%
DCFS	2.1%	2.7%	3.2%	3.4%	3.7%	4.0%	4.1%	5.1%	6.1%	6.9%	9.7%	10.2%	10.2%
Office of Prosecutor	2.6%	2.8%	3.8%	4.1%	4.8%	5.2%	5.6%	5.8%	5.7%	5.5%	5.9%	7.1%	7.1%
Office of Public Defender	2.6%	2.8%	3.8%	4.1%	4.8%	5.2%	5.6%	5.8%	5.7%	5.5%	5.9%	7.1%	7.1%
Court of Common Pleas	2.7%	2.8%	3.8%	4.2%	4.9%	5.4%	5.8%	6.3%	6.3%	6.1%	6.5%	7.9%	7.9%
Juvenile Court	0.8%	0.9%	1.2%	1.1%	1.2%	1.3%	1.3%	1.6%	2.0%	2.0%	2.8%	2.8%	2.8%
Sheriff's Office	2.6%	2.8%	3.8%	4.1%	4.8%	5.2%	5.6%	5.8%	5.7%	5.5%	5.9%	7.1%	7.1%
County Jail	2.6%	2.8%	3.8%	4.1%	4.8%	5.2%	5.6%	5.8%	5.7%	5.5%	5.9%	7.1%	7.1%
Office of Medical Examiner	4.3%	4.3%	6.3%	7.2%	8.6%	11.5%	12.2%	14.4%	14.8%	14.8%	24.6%	24.9%	24.9%

Source: Cutler Declaration, Appendix A

Table F.2
Summit County - Share of Harms Due to Distributors' Misconduct

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Approach 1													
ADM Board	0.5%	0.6%	0.7%	0.9%	2.1%	2.1%	3.7%	6.1%	7.0%	8.0%	9.8%	8.8%	8.8%
Children Services Board	1.2%	1.5%	2.0%	2.9%	7.7%	8.1%	10.5%	12.4%	13.4%	15.2%	19.4%	17.2%	17.2%
Prosecutor	1.5%	1.5%	2.1%	2.6%	2.8%	3.4%	4.3%	4.7%	5.6%	7.0%	7.6%	7.5%	7.5%
Court of Common Pleas	1.5%	1.5%	2.1%	2.6%	2.8%	3.4%	4.3%	4.7%	5.6%	7.0%	7.6%	7.5%	7.5%
Juvenile Court	0.7%	0.8%	1.1%	1.3%	1.6%	1.9%	2.4%	2.5%	2.9%	3.4%	4.3%	4.2%	4.2%
Sheriff's Office	1.5%	1.5%	2.1%	2.6%	2.8%	3.4%	4.3%	4.7%	5.6%	7.0%	7.6%	7.5%	7.5%
County Jail	1.5%	1.6%	2.2%	2.6%	3.1%	3.3%	3.9%	4.5%	5.1%	5.7%	6.0%	6.0%	6.0%
Alternative Corrections	1.5%	1.6%	2.2%	2.6%	3.1%	3.3%	3.9%	4.5%	5.1%	5.7%	6.0%	6.0%	6.0%
Adult Probation	1.5%	1.5%	2.1%	2.6%	2.8%	3.4%	4.3%	4.7%	5.6%	7.0%	7.6%	7.5%	7.5%
Medical Examiner	3.0%	3.1%	3.0%	4.4%	5.4%	4.8%	7.9%	7.8%	13.0%	16.4%	23.6%	20.4%	20.4%
Approach 2													
ADM Board	0.8%	1.0%	1.2%	1.4%	2.9%	3.0%	4.6%	7.0%	7.7%	8.3%	9.9%	8.9%	8.9%
Children Services Board	2.0%	2.6%	3.4%	4.3%	11.0%	11.5%	13.2%	14.3%	14.6%	15.8%	19.7%	17.5%	17.5%
Prosecutor	2.5%	2.5%	3.4%	3.9%	4.0%	4.9%	5.4%	5.4%	6.1%	7.2%	7.7%	7.7%	7.7%
Court of Common Pleas	2.5%	2.5%	3.4%	3.9%	4.0%	4.9%	5.4%	5.4%	6.1%	7.2%	7.7%	7.7%	7.7%
Juvenile Court	1.2%	1.4%	1.8%	1.9%	2.2%	2.7%	3.0%	2.9%	3.2%	3.5%	4.4%	4.2%	4.2%
Sheriff's Office	2.5%	2.5%	3.4%	3.9%	4.0%	4.9%	5.4%	5.4%	6.1%	7.2%	7.7%	7.7%	7.7%
County Jail	2.6%	2.7%	3.6%	3.8%	4.4%	4.7%	4.9%	5.2%	5.5%	5.9%	6.1%	6.1%	6.1%
Alternative Corrections	2.6%	2.7%	3.6%	3.8%	4.4%	4.7%	4.9%	5.2%	5.5%	5.9%	6.1%	6.1%	6.1%
Adult Probation	2.5%	2.5%	3.4%	3.9%	4.0%	4.9%	5.4%	5.4%	6.1%	7.2%	7.7%	7.7%	7.7%
Medical Examiner	5.2%	5.3%	5.0%	6.5%	7.7%	6.8%	10.0%	9.0%	14.1%	17.0%	24.0%	20.7%	20.7%

Source: Cutler Declaration, Appendix A

¹ See Declaration of David Cutler in Support of Plaintiffs' Memorandum in Opposition to Defendants' Motion to Exclude David Cutler's Opinions and Proposed Testimony ("Cutler Declaration"), Appendix A.

To calculate damages due to distributors' misconduct, I apply the same methodology described in Section V in my Report using these estimates. Tables F.3 and F.4 below report estimated damages for these same divisions due to distributors' misconduct under Professor Cutler's Approach 1 and Approach 2.

Table F.3
Cuyahoga County - Damages Due to Distributors' Misconduct

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Approach 1														
ADAMHS Board	\$0.3	\$0.4	\$0.5	\$0.5	\$0.5	\$0.5	\$0.6	\$1.2	\$1.6	\$2.1	\$3.1	\$2.8	\$2.8	\$17.1
DCFS	\$1.6	\$2.1	\$2.5	\$2.8	\$2.9	\$3.1	\$3.5	\$4.6	\$5.8	\$7.0	\$9.8	\$10.8	\$11.5	\$68.0
Office of Prosecutor	\$0.2	\$0.3	\$0.4	\$0.5	\$0.6	\$0.7	\$0.8	\$1.0	\$1.1	\$1.2	\$1.3	\$1.7	\$1.7	\$11.5
Office of Public Defender	\$0.1	\$0.1	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.4	\$0.4	\$0.5	\$0.5	\$0.7	\$0.8	\$4.9
Court of Common Pleas	\$0.3	\$0.3	\$0.4	\$0.5	\$0.6	\$0.7	\$0.8	\$1.0	\$1.1	\$1.2	\$1.4	\$1.8	\$1.8	\$11.8
Juvenile Court	\$0.1	\$0.2	\$0.3	\$0.3	\$0.3	\$0.3	\$0.4	\$0.5	\$0.7	\$0.7	\$1.0	\$1.1	\$1.2	\$7.0
Sheriff's Office	\$0.3	\$0.3	\$0.4	\$0.4	\$0.6	\$0.7	\$0.9	\$1.0	\$1.1	\$1.2	\$1.2	\$1.5	\$1.6	\$11.2
County Jail	\$0.6	\$0.6	\$0.9	\$1.0	\$1.4	\$1.7	\$2.1	\$2.5	\$2.7	\$3.1	\$3.2	\$4.0	\$4.3	\$28.2
Office of Medical Examiner	\$0.1	\$0.1	\$0.2	\$0.3	\$0.3	\$0.4	\$0.5	\$0.7	\$0.7	\$0.9	\$1.5	\$1.6	\$1.7	\$9.0
Total	\$3.6	\$4.4	\$5.8	\$6.5	\$7.5	\$8.4	\$10.0	\$12.9	\$15.2	\$17.9	\$23.2	\$26.0	\$27.3	\$168.6
Approach 2														
ADAMHS Board	\$0.6	\$0.8	\$0.9	\$0.8	\$0.8	\$0.8	\$0.8	\$1.4	\$1.7	\$2.2	\$3.1	\$2.8	\$2.8	\$19.4
DCFS	\$2.7	\$3.5	\$4.2	\$4.1	\$4.1	\$4.5	\$4.5	\$5.3	\$6.3	\$7.2	\$10.0	\$11.0	\$11.6	\$79.0
Office of Prosecutor	\$0.4	\$0.5	\$0.7	\$0.7	\$0.9	\$0.9	\$1.1	\$1.1	\$1.2	\$1.3	\$1.4	\$1.7	\$1.7	\$13.5
Office of Public Defender	\$0.2	\$0.2	\$0.3	\$0.4	\$0.4	\$0.4	\$0.4	\$0.5	\$0.5	\$0.5	\$0.5	\$0.7	\$0.8	\$5.8
Court of Common Pleas	\$0.5	\$0.5	\$0.7	\$0.7	\$0.9	\$1.0	\$1.0	\$1.1	\$1.2	\$1.3	\$1.4	\$1.8	\$1.8	\$13.8
Juvenile Court	\$0.2	\$0.3	\$0.4	\$0.4	\$0.4	\$0.5	\$0.4	\$0.5	\$0.7	\$0.8	\$1.0	\$1.1	\$1.2	\$8.0
Sheriff's Office	\$0.4	\$0.5	\$0.7	\$0.7	\$0.9	\$1.0	\$1.1	\$1.2	\$1.2	\$1.3	\$1.3	\$1.6	\$1.7	\$13.2
County Jail	\$1.0	\$1.1	\$1.5	\$1.5	\$2.0	\$2.4	\$2.6	\$2.9	\$3.0	\$3.2	\$3.3	\$4.1	\$4.3	\$32.9
Office of Medical Examiner	\$0.2	\$0.2	\$0.3	\$0.4	\$0.4	\$0.6	\$0.6	\$0.8	\$0.8	\$0.9	\$1.5	\$1.6	\$1.8	\$10.1
Total	\$6.2	\$7.4	\$9.7	\$9.6	\$10.7	\$11.9	\$12.5	\$14.8	\$16.6	\$18.5	\$23.5	\$26.4	\$27.8	\$195.7

Source: Appendix IV.C Updated

Table F.4
Summit County - Damages Due to Distributors' Misconduct

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Approach 1														
ADM Board	\$0.1	\$0.1	\$0.1	\$0.4	\$0.8	\$0.8	\$1.2	\$2.0	\$2.4	\$2.7	\$3.2	\$2.9	\$2.8	\$19.6
Children Services Board	\$0.5	\$0.6	\$0.9	\$1.2	\$3.3	\$3.2	\$3.7	\$4.6	\$5.0	\$6.0	\$7.9	\$6.8	\$7.4	\$51.0
Prosecutor	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.1	\$0.2	\$0.2	\$0.2	\$1.3
Court of Common Pleas	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.4	\$0.4	\$2.6
Juvenile Court	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$2.2
Sheriff's Office	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.4	\$0.5	\$0.5	\$0.5	\$3.9
County Jail	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.3	\$0.4	\$0.5	\$0.6	\$0.7	\$0.7	\$0.7	\$0.7	\$6.0
Alternative Corrections	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.4	\$0.4	\$0.4	\$2.9
Adult Probation	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.9
Medical Examiner	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4	\$0.4	\$2.0
Total	\$1.1	\$1.3	\$1.8	\$2.6	\$5.2	\$5.2	\$6.4	\$8.4	\$9.7	\$11.1	\$14.0	\$12.6	\$13.2	\$92.5
Approach 2														
ADM Board	\$0.1	\$0.2	\$0.2	\$0.6	\$1.2	\$1.1	\$1.6	\$2.3	\$2.7	\$2.8	\$3.3	\$2.9	\$2.9	\$21.8
Children Services Board	\$0.8	\$1.0	\$1.4	\$1.7	\$4.7	\$4.5	\$4.7	\$5.3	\$5.5	\$6.2	\$8.0	\$6.9	\$7.6	\$58.3
Prosecutor	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.1	\$0.2	\$0.2	\$0.2	\$1.6
Court of Common Pleas	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.4	\$0.3	\$0.3	\$0.4	\$0.4	\$3.0
Juvenile Court	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$2.5
Sheriff's Office	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.4	\$0.4	\$0.4	\$0.4	\$0.5	\$0.5	\$0.5	\$0.5	\$4.7
County Jail	\$0.3	\$0.3	\$0.4	\$0.5	\$0.5	\$0.5	\$0.5	\$0.6	\$0.7	\$0.7	\$0.8	\$0.7	\$0.8	\$7.2
Alternative Corrections	\$0.1	\$0.1	\$0.2	\$0.2	\$0.2	\$0.3	\$0.3	\$0.3	\$0.3	\$0.3	\$0.4	\$0.4	\$0.4	\$3.5
Adult Probation	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$1.1
Medical Examiner	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.2	\$0.2	\$0.4	\$0.4	\$0.4	\$2.2
Total	\$1.9	\$2.2	\$3.0	\$3.8	\$7.4	\$7.4	\$8.1	\$9.7	\$10.5	\$11.5	\$14.2	\$12.8	\$13.4	\$105.8

Source: Appendix IV.D Updated

Total damages are reported in Table F.5 below.

Table F.5
Total Damages Due to Distributors' Misconduct

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Approach 1														
Cuyahoga	\$3.6	\$4.4	\$5.8	\$6.5	\$7.5	\$8.4	\$10.0	\$12.9	\$15.2	\$17.9	\$23.2	\$26.0	\$27.3	\$168.6
Summit	\$1.1	\$1.3	\$1.8	\$2.6	\$5.2	\$5.2	\$6.4	\$8.4	\$9.7	\$11.1	\$14.0	\$12.6	\$13.2	\$92.5
Total	\$4.7	\$5.7	\$7.6	\$9.1	\$12.7	\$13.6	\$16.4	\$21.3	\$24.8	\$29.0	\$37.1	\$38.6	\$40.6	\$261.1
Approach 2														
Cuyahoga	\$6.2	\$7.4	\$9.7	\$9.6	\$10.7	\$11.9	\$12.5	\$14.8	\$16.6	\$18.5	\$23.5	\$26.4	\$27.8	\$195.7
Summit	\$1.9	\$2.2	\$3.0	\$3.8	\$7.4	\$7.4	\$8.1	\$9.7	\$10.5	\$11.5	\$14.2	\$12.8	\$13.4	\$105.8
Total	\$8.1	\$9.6	\$12.7	\$13.4	\$18.1	\$19.3	\$20.6	\$24.4	\$27.1	\$30.0	\$37.7	\$39.2	\$41.2	\$301.5

Source: Tables F.3 and F.4